

CLAIMS

What is claimed is:

- 5 1. An adaptive electromagnetic wave-stirred exposure apparatus comprising:
 an electromagnetic wave chamber;
 one or more power amplifiers;
 one or more electromagnetic wave generators; and
 one or more electromagnetic wave sensors, said sensors disposed within said
10 electromagnetic wave chamber.
2. The application of claim 1 wherein said electromagnetic wave-stirred exposure
apparatus comprises a microwave-stirred exposure apparatus.
- 15 3. The apparatus of claim 1 wherein said sensors detect selective absorption of
electromagnetic wave frequencies by a device under examination, the device disposed within said
electromagnetic wave chamber.
- 20 4. The apparatus of claim 3 wherein said electromagnetic wave generator is automatically
adjusted to compensate for said selective absorption.
- 25 5. The apparatus of claim 1 further comprising one or more electromagnetic wave feeds
into said chamber.
- 30 6. The apparatus of claim 5 wherein said feeds comprise an x-axis feed, a y-axis feed, and
a z-axis feed.
- 35 7. The apparatus of claim 1 wherein said feeds comprise one or more wideband
log-periodic antennas.
8. The apparatus of claim 1 wherein said chamber comprises an electromagnetic wave
reverberation chamber.
9. The apparatus of claim 1 further comprising a processor for adjusting one or more of
35 said generators.

10. The apparatus of claim 9 wherein said processor comprises a computer.

11. The apparatus of claim 9 wherein said processor first analyzes a power spectrum before
5 adjusting one or more of said generators.

12. The apparatus of claim 11 wherein said processor uses Fast Fourier Transforms to
analyze the power spectrum.

10 13. The apparatus of claim 9 wherein said processor first analyzes readings obtained from
said sensors and then adjusts an output amplitude of said one or more amplifiers such that said
readings obtained from said sensors are adaptively adjusted such that they remain substantially similar
in a magnitude of their readings.

15 14. The apparatus of claim 1 further comprising readings obtained from said sensors used
to control said amplifiers and/or generator so as to create an adaptive system.

15. A method of adaptive electromagnetic wave stirring, the method comprising the steps of:
providing an electromagnetic wave chamber;
20 disposing a device to be tested within the chamber;
providing one or more power amplifiers;
disposing one or more sensors within said electromagnetic wave chamber;
providing one or more electromagnetic wave generators;
obtaining readings from the sensors.

25 16. The method of claim 15 wherein the method of adaptive electromagnetic stirring
comprises microwave stirring.

17. The method of claim 15 further comprising the step of providing a processor.

30 18. The method of claim 17 wherein the processor adjusts one or more of the generators
based upon readings obtained from the sensors.

35 19. The method of claim 17 wherein the processor analyzes a power spectrum from
readings obtained by the one or more sensors.

20. The method of claim 19 wherein the analyses is achieved by the processor performing Fast Fourier Transforms.

5 21. The method of claim 15 further comprising the step of adjusting the one or more power amplifiers based upon readings obtained from the one or more sensors.

22. The method of claim 21 wherein the step of adjusting the one or more power amplifiers is performed quickly and repetitiously so as to create an adaptive system.

10 23. The method of claim 17 wherein the step of providing a processor comprises providing a state-of-the-art processor.

15 24. The method of claim 17 wherein the step of providing a processor comprises providing a computer.

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